



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,666	01/16/2004	Junaid Ahmed Siddiqui	06406 USA	8596

23543 7590 11/23/2005

AIR PRODUCTS AND CHEMICALS, INC.
PATENT DEPARTMENT
7201 HAMILTON BOULEVARD
ALLENTOWN, PA 181951501

EXAMINER

MARCHESCHI, MICHAEL A

ART UNIT	PAPER NUMBER
----------	--------------

1755

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/759,666

Applicant(s)

SIDDIQUI, JUNAID AHMED

Examiner

Michael A. Marcheschi

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 27-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 27-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1755

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 12-16 and 27-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The new matter added to claims 1, 28, 29 and 31 is the limitation “stabilizer comprising...P” because the specification, as filed, never literally defines or suggests that the stabilizer is P. Although section [0035] states that a nonmetal, such as P, can be used, this does not reasonably provide support for the above limitation because (1) the above section is not clearly referring to the stabilizer and (2) section [0033] defines that the stabilizer is a metal, thus excluding non metals. In addition, the limitation “mixture thereof” is new matter because the specification does not suggest that mixtures of the claimed stabilizers can be used.

The new matter added to claim 12 is the limitation “differs both from the catalyst and from the abrasive particle” because the specification, as filed, never literally defines that the stabilizer differs from the abrasive particle. It only states that the stabilizer is not the same as the catalyst but makes no mention of the relationship between the stabilizer and the abrasive. In addition, the limitation “bonded...prior to or simultaneously...” because the specification, as filed, never literally defines or suggests this limitation. Although a review of the specification,

Art Unit: 1755

as a whole, might suggest the “prior to” limitation (see examples), the specification does not clearly provide support for the “simultaneously” limitation.

The new matter added to claim 13 is the limitation “tungstate” because the specification, as filed, never literally defines or suggests this limitation. With respect to the tungstate limitation, the specification never defines that a tungstate can be used as the stabilizer (i.e. the stabilizer in the specification is only limited to W (i.e. specific element and not a tungstate)).

The new matter added to claim 16 is the limitation “tungstate” because the specification, as filed, never literally defines or suggests this limitation. The specification never defines that a tungstate can be used as the stabilizer (i.e. the stabilizer in the specification is only limited to W (i.e. specific element and not a tungstate)).

The new matter added to claim 30 is the limitation “tungstate” because the specification, as filed, never literally defines or suggests these limitations. The specification never defines that a tungstate can be used as the stabilizer (i.e. the stabilizer in the specification is only limited to W (i.e. specific element and not in the form of a tungstate)).

The new matter added to claim 31 is the limitation “P containing stabilizer” because the specification, as filed, never literally defines or suggests this limitation.

The new matter added to claim 32 is the limitation “borate” because the specification, as filed, never literally defines or suggests this limitation.

The new matter added to claim 33 is the limitation “abrasive particles have a positive zeta potential” because the specification, as filed, never literally defines or suggests the zeta potential of the abrasive particles, themselves. The zeta potential of the modified particles might be

Art Unit: 1755

suggested but this is not the same as a zeta potential of the abrasive, without modification, as is apparently claimed.

The new matter added to claim 34 is the limitations “Al containing stabilizer” because the specification, as filed, never literally defines or suggests this limitation. The specification only provides support for an Al stabilizer and **not** an Al containing stabilizer because “Al containing” implies that the stabilizer contains Al but is **not** limited to only Al as a component of the stabilizer. In other words, the term “containing” opens the stabilizer to other components not contemplated by the specification (i.e. the stabilizer in the specification is only limited to Al (i.e. specific element)).

The other claims are rejected because they are dependent on rejected claims.

Claims 5 and 11 are objected to because of the following informalities:

The limitation “abrasive particle **are** not alumina”, defined in claim 5, is objected to because it is not defined in a proper manner.

The limitation “Fe Cu” defined in claim 11 is objected to because it is missing a comma.

Appropriate correction is required.

Claims 12-16, 27, 31, 32 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 is indefinite as to the way the last two lines of the claim are drafted because this limitation is not defined in a clear and concise manner. This limitation is wordy and should be rewritten in a clearer manner.

Claim 27 is indefinite as to the scope of “substantially free of” because the examiner is unclear as to what this encompasses, thus rendering the scope of the claim unclear.

Claim 31 is indefinite as to the limitation “the P containing stabilizer” because this lacks antecedent basis since a “P containing stabilizer” has not been literally defined before. The recitation of the stabilizer in line 3 of the claim does not clearly provide antecedent basis for the above limitation.

Claim 32 is indefinite as to the limitation “the borate” because this lacks antecedent basis since a “borate” has not been literally defined before.

Claim 34 is indefinite as to the limitation “the Al containing stabilizer” because this lacks antecedent basis since an “Al containing stabilizer” has not been literally defined before. The recitation of the stabilizer in line 3 of the claim does not clearly provide antecedent basis for the above limitation.

The other claims are indefinite because they depend on an indefinite claim.

Applicant’s election without traverse of Group I, claims 1-16 and 27 in the reply filed on 10/28/05 is acknowledged.

Claims 1-15, 27, 32, 33 and 34 are rejected under 35 U.S.C. 103(a) as obvious over Small et al. (398).

Art Unit: 1755

Small et al. teach in the abstract and sections [0019]-[0044], a composition comprising abrasive particles (section [0023] implies that the abrasive (silica) is colloidal) having a surface at least partially coated with a catalyst not of the groups specified (coated encompasses bonded), hydrogen peroxide and deionized water. Section [0029] implies that mixtures of catalysts can be used.

The reference teaches that the abrasive can be coated with a catalyst not of the groups defined in the abstract and claim 1 and although the reference does **not literally** define that **mixtures** of catalysts can be used for the **broad disclosure of the catalysts defined in the abstract and claim 1**, the reference, when defining specific catalysts, as in section [0029] states that mixtures can be used. In view of this, it is the examiners position that one skilled in the art would have known and found it obvious, from the teachings of section [0029], that mixtures of the broad catalysts defined in the abstract and claim 1 can be used and are within the scope of the reference teachings. This is apparent because “a reference is good **not only for what it teaches but also for what one of ordinary skill might reasonably infer from the teachings.** *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ 545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re LeGrice* 133 USPQ 365; *In re Preda* 159 USPQ 342 (CCPA 1968). In view of this, it is the examiners position, that from section [0029], one can reasonable infer that mixtures of the broad catalysts defined are within the scope of the reference absent specific evidence to the contrary. In the alternative, it is prima facie obvious to combine two or more materials (catalysts) disclosed by the prior art to form a third material (mixture of catalysts) that is to be used for the same purpose. *In re Kerkhoven* 205 USPQ 1069. With

Art Unit: 1755

mixtures of catalysts being apparent and/or obvious, one can see that the possible metal materials used (ones not belonging to the groups specified) for the catalyst can encompass the claimed materials (claimed catalyst and stabilizer materials are encompassed by the reference metals because they do not belong to the groups defined in the reference). Although the reference does not define these as stabilizers, no distinction is seen to exist because, irrespective of what they are called and used for (function), they are still known to be used to coat an abrasive. In addition, the metals used are the same and the same metals, when used in the same manner (coating abrasive particles), are expected to function the same absent evidence to the contrary. In summary, the teaching of metal not from groups 4b, 5b and 6b encompasses the claimed metals and combinations thereof. With respect to the zeta potential, although not defined all particles have a zeta potential and it is the examiner position that since the particles can be the same they are expected to have the claimed zeta potential absent evidence to the contrary. Finally, the limitation "stabilizer bonded to the abrasive prior to...abrasive" is defining a process limitation (how it is bonded) and as is well known process limitations used to define a product in "product-by-process" claims do not patentably distinguish the product even though made by a different process. *In re Thorpe* 227 USPQ 964. It is the examiners position that since 2 metals can be used (tungstate being obvious as defined above), the structure of the abrasive can be the same absent evidence to the contrary.

Claims 12, 13, 16 and 30 are rejected under 35 U.S.C. 103(a) as obvious over Grunwald (710) in view of Small et al. (398).

The teachings of Grunwald are defined in the previous office action which are incorporated herein by reference.

The teachings of Small et al. (398) are defined above.

As defined in the previous office action, Grunwald teaches a composition which comprises an abrasive agent (colloidal silica) being coated with the claimed metals. Although the reference does not define these as stabilizers, no distinction is seen to exist because, irrespective of what they are called and used for (function), they are still known to be used to coat an abrasive. As defined in the reference, the metals can be a mixture of iron and tungsten. Although tungstate is not defined, and assuming *arguendo* about the new matter, the reference defines that a metal bearing layer (i.e. defined as a water insoluble metal compound-column 3, lines 36-40) and it is the examiner position that one skilled in the art would have appreciated that tungsten compounds can be used to deposit the metal bearing layer because tungstate compounds broadly fall within the teachings of "metal bearing layer" (i.e. insoluble metal compound) of the reference. In addition, the use of any source of the tungsten metal is well within the scope of the skilled artisan and one would have appreciated that tungstate can be used to deposit a tungsten containing metal layer. With respect to the deionized water, the primary reference states that the abrasive agent is used in CMP slurries, and CMP slurries are known to use deionized water, as the medium, as shown by the secondary reference, thus the use of deionized water to form a slurry of the primary reference is well within the scope of the skilled artisan. With respect to the oxidizer, the primary reference states that the abrasive agent is used in CMP slurries, and CMP slurries are known to incorporate an oxidizer (hydrogen peroxide), as shown by the secondary reference, thus the incorporation of an oxidizer to form a CMP slurry of the primary reference is

Art Unit: 1755

well within the scope of the skilled artisan. Finally, the limitation "stabilizer bonded to the abrasive prior to...abrasive" is defining a process limitation (how it is bonded) and as is well known process limitations used to define a product in "product-by-process" claims do not patentably distinguish the product even though made by a different process. *In re Thorpe* 227 USPQ 964. It is the examiners position that since 2 metals can be used (tungstate being obvious as defined above), the structure of the abrasive can be the same absent evidence to the contrary.

Claims 12, 13, 16 and 30 are rejected under 35 U.S.C. 103(a) as obvious over Mueller et al. (288) in view of Grunwald (710).

The teachings according to the references are defined in the previous office action.

Although the primary reference does not teach the claimed abrasive agent, it is the examiners position that one skilled in the art would have found it obvious to substitute one known abrasive material, as shown by the secondary reference, for another that is to be used for the same purpose because this concept is clearly within the scope of the skilled artisan. In addition, the secondary reference teaches that the coated abrasive agent, when used in a CMP slurry, will produce a more uniform and stable dispersion, thus providing motivation for the above substitution because any material which will improve CMP slurries is within the scope of the skilled artisan in order to optimize the dispersion, thus optimizing the polishing performance.

As defined in the Grunwald, the metals can be a mixture of iron and tungsten. Although tungstate is not defined, and assuming arguendo about the new matter, the reference defines that a metal bearing layer (i.e. defined as a water insoluble metal compound-column 3, lines 36-40) and it is the examiner position that one skilled in the art would have appreciated that tungsten

Art Unit: 1755

compounds can be used to deposit the metal bearing layer because tungstate compounds broadly fall within the teachings of "metal bearing layer" (i.e. insoluble metal compound) of the reference. In addition, the use of any source of the tungsten metal is well within the scope of the skilled artisan and one would have appreciated that tungstate can be used to deposit a tungsten containing metal layer. Finally, the limitation "stabilizer bonded to the abrasive prior to...abrasive" is defining a process limitation (how it is bonded) and as is well known process limitations used to define a product in "product-by-process" claims do not patentably distinguish the product even though made by a different process. *In re Thorpe* 227 USPQ 964. It is the examiners position that since 2 metals can be used (tungstate being obvious as defined above), the structure of the abrasive can be the same absent evidence to the contrary.

Claims 1-16, 27, 30, 32, 33 and 34 are rejected under 35 U.S.C. 103(a) as obvious over Mueller et al. (288) in view of Small et al. (398).

The teachings according to the references are defined in the previous office action and/or defined above.

Although the primary reference does not literally define that the catalyst is coated on the abrasive particles, this concept is an obvious modification thereof and therefore obvious to the skilled artisan because the secondary reference clearly shows that catalysts are generally known to be coated onto abrasive particles when used in CMP slurries. The motivation to coat the particles with the catalyst stems from catalyst coating of abrasive particles being known in the art as a way to incorporate catalysts into the composition. Any known way to incorporate catalysts into CMP composition is therefore within the scope of the skilled artisan. With respect to the

Art Unit: 1755

metals (catalysts) used in the primary reference, the reference teaches all but Al, B, and W, however, the reference clearly states that the at least one catalyst is a metal that has multiple oxidation states and is not limited to the ones defined. Since Al, W and B have multiple oxidation states, it is the examiners position that they are within the scope of this reference. With respect to the mixture of metals, the reference states "at least one", thus reading on a mixture. Although the primary reference does not define these as stabilizers, no distinction is seen to exist because, irrespective of what they are called and used for (function), they are still known to be used to coat an abrasive (coating aspect being obvious see above). In addition, the metals used are the same and the same metals, when used in the same manner (coating abrasive particles), are expected to function the same absent evidence to the contrary. Although tungstate is not defined, and assuming arguendo about the new matter, it is the examiner position that one skilled in the art would have appreciated that tungsten compounds can be used to deposit the a tungsten containing catalyst (tungsten being obvious as defined above). With respect to the zeta potential, although not defined all particles have a zeta potential and it is the examiner position that since the particles can be the same they are expected to have the claimed zeta potential absent evidence to the contrary. Finally, the limitation "stabilizer bonded to the abrasive prior to...abrasive" is defining a process limitation (how it is bonded) and as is well known process limitations used to define a product in "product-by-process" claims do not patentably distinguish the product even though made by a different process. *In re Thorpe* 227 USPQ 964. It is the examiners position that since 2 metals can be used (tungstate being obvious as defined above), the structure of the abrasive can be the same absent evidence to the contrary.

Applicant's arguments with respect to claims 1-16 and 27 have been considered but are moot in view of the new ground(s) of rejection.

Although a new grounds of rejection has been made (application of different art), the examiner will, comment on applicants remarks.

Applicant appears to argue that the Small et al. reference is disqualified as art in view of the statement of common ownership. The examiner acknowledges this statement which disqualifies Small et al. (495) as art, however, this statement does **not** disqualify Small et al. (398) because it is a 103 rejection based on 102(a) art which can not be disqualified by a statement of common ownership.

Applicant appears to argue Grunwald (710) alone and not view of Small et al. (i.e. this is a child of Small et al. (398) thus the teachings are the same), as applied.

Applicant argues Mueller et al. (288) in view of Grunwald (710) in that all the salts of Mueller et al. are soluble salts and not one of A1, B and P are recited. Although this may be the case (examiner not in total agreement with applicant), applicant does not limit the claims to insoluble materials. In addition, applicant has not shown that all catalysts within the scope of the reference (having multiple oxidation states) are soluble. In fact, this reference does **not** mention that the catalysts are soluble. Since applicant (1) does not claim an insoluble material and (2) does not clearly show that **all** of the catalyst within the scope of the reference are soluble, as argued, no distinction is seen to exist. Although this reference does not mention A1 and B, these are obvious in Mueller et al. for the reasons defined in the previous office action. With respect to P, this is new matter. Applicant also appears to argue the limitation "stabilizer is bonded to the abrasive prior to...abrasive", however, this is defining a process limitation (how it is bonded)

Art Unit: 1755

and as is well known, process limitations used to define a product in "product-by-process" claims do not patentably distinguish the product even though made by a different process. *In re Thorpe* 227 USPQ 964. It is the examiners position that since 2 metals can be used (tungstate being obvious as defined above), the structure of the abrasive can be the same absent evidence to the contrary. Finally, applicant appears to argue criticality for the use of a stabilizer/catalyst. The examiner acknowledges these results but (1) they are not commensurate with the scope of the claims and (2), irrespective of what the materials are called, the reference teaches using 2 catalyst materials and one of the catalyst material, whether explicitly defined or obvious for the above reasons, is within the scope of the claimed stabilizer (i.e. it is the same).

With respect to the rejection based on Mueller et al. (288) in view of Small et al. (495)- i.e. this is a child of Small et al. (398) thus the teachings are the same), applicant has not argued this.

Finally, applicant argues that none of the references teach the claimed stabilizers. Although this may be true, they are obvious for the reasons defined above, which applicant has not clearly argued.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

Art Unit: 1755

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

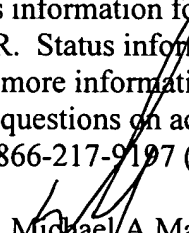
Evidence of unexpected results must be clear and convincing. *In re Lohr* 137 USPQ 548. Evidence of unexpected results must be commensurate in scope with the subject matter claimed. *In re Linder* 173 USPQ 356. To establish unexpected results over a claimed range, applicants should compare a sufficient number of tests both inside and outside (i.e. as well as the upper and lower limits) the claimed range to show the criticality of the claimed range. *In re Hill* 284 F.2d 955, 128 USPQ 197 (CCPA 1960).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MM
11/05


Michael A Marcheschi
Primary Examiner

Application/Control Number: 10/759,666
Art Unit: 1755

Page 15

Art Unit 1755